



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|-----------------|-------------|-------------------------|---------------------|------------------|
| 09/880,698 | 06/12/2001 | Henricus Jozef Vergeest | 40843-C | 4316 |

7590 07/08/2003

The Whitaker Corporation
Suite 450
4550 New Linden Hill Road
Wilmington, DE 19808

EXAMINER

KIANNI, KAVEH C

ART UNIT

PAPER NUMBER

2877

DATE MAILED: 07/08/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/880,698

Applicant(s)

VERGEEST ET AL.

Examiner

Kevin C Kianni

Art Unit

2877

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-23 is/are pending in the application.
- 4a) Of the above claim(s) 22 is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-8, 13-17 and 23 is/are rejected.
- 7) ☐ Claim(s) 9-12 and 18-21 is/are objected to.
- 8) ☒ Claim(s) 1-23 are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 12 June 2001 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on ____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☒ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. ____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☒ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) ____.
- 4) ☐ Interview Summary (PTO-413) Paper No(s) ____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other:

DETAILED ACTION

Election/Restrictions

1. Restriction to one of the following inventions is required under 35 U.S.C. 121:
 - I. Claims 1-21 and 23, drawn to sublimating glass through a laser device, classified in class 385, subclass 123.
 - II. Claim 22, drawn to optical assembly having operative vs. optical axis for mounting an optical fiber, classified in class 385, subclass 137.

The inventions are distinct, each from the other because of the following reasons:

2. Inventions s Group I, claims 1-20 and 22 and Group II, claim 2 are related as combination and subcombination. Inventions in this relationship are distinct if it can be shown that (1) the combination as claimed does not require the particulars of the subcombination as claimed for patentability, and (2) that the subcombination has utility by itself or in other combinations (MPEP § 806.05(c)). In the instant case, the combination as claimed does not require the particulars of the subcombination as claimed because Cutting a fiber through a laser device can be implemented using any assembly for holding a fiber. The subcombination has separate utility such as assembling an optical fiber in a precise/particular direction for purpose of optical grating/filtering.
3. Because these inventions are distinct for the reasons given above and the search required for Group I is not required for Group II, restriction for examination purposes as indicated is proper.

4. During a telephone conversation with Mr. Driscoll on 6/18/03 a provisional election was made with traverse to prosecute the invention of Group I, claims 1-21 and 23. Affirmation of this election must be made by applicant in replying to this Office action. Claim 22 is withdrawn from further consideration by the examiner, 37 CFR 1.142(b), as being drawn to a non-elected invention.

5. Applicant is reminded that upon the cancellation of claims to a non-elected invention, the inventorship must be amended in compliance with 37 CFR 1.48(b) if one or more of the currently named inventors is no longer an inventor of at least one claim remaining in the application. Any amendment of inventorship must be accompanied by a request under 37 CFR 1.48(b) and by the fee required under 37 CFR 1.17(i).

Drawings

6. The drawings are objected to because: (A) figures 1-5 are not labeled and (B) the elements of figures 6-8 are not readable and need to be relabeled (C) features of figures 6-8 are not clearly shown. A proposed drawing correction or corrected drawings are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.

Allowable Subject Matter

7. Claims 9-12 and 18-21 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Claims 9, 18 and 20-21 are allowable because the prior art of record, taken alone or in combination, fails to disclose or render obvious wherein said path comprises two predetermined angles to shape a wedge on the end face of the fiber in combination with the rest of the limitations of the base claim and any intervening claim.

Claim 10 is allowable because the prior art of record, taken alone or in combination, fails to disclose or render obvious wherein said path is a curve in combination with the rest of the limitations of the base claim and any intervening claim.

Claim 11 is allowable because the prior art of record, taken alone or in combination, fails to disclose or render obvious wherein path comprises a predetermined angle which is repeatable within less than $\pm 0.5^\circ$ at the core region in combination with the rest of the limitations of the base claim and any intervening claim.

Claim 12 is allowable because the prior art of record, taken alone or in combination, fails to disclose or render obvious wherein the predetermined angle is within about $\pm 10 \mu\text{m}$ of a reference surface along the optical axis of said glass fiber. in combination with the rest of the limitations of the base claim and any intervening claim.

Claim 19 is allowable because the prior art of record, taken alone or in combination, fails to disclose or render obvious an end face at least a portion of which is angled at more than about 15° from perpendicular of the optical axis of said glass fiber in combination with the rest of the limitations of the base claim and any intervening claim.

Claim Rejections - 35 USC § 103

8. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

9. Claims 1-8, 13-17 and 23 are rejected under 35 U.S.C. 103(a) as being unpatentable over Brown (US 5983676).

Regarding claims 1, 3, 5-7, 13 and 15, Brown teaches a process for cutting at least one optical fiber (shown in fig. 1; see abstract), the process comprising the steps of: introducing a glass fiber 26 into a holding and positioning device 46 (see fig. 3, item fiber glass 26 being hold/positioned by item 46); actuating a laser device to deliver a beam having a power suitable for sublimating cutting glass (see col. 2, line 64-col. 3, line 10); and effecting the relative adjustment of said beam across said glass fiber along a path (col. 4, lines 7-11), thereby sublimating glass and cutting said glass fiber along said path (see fig. 2-3, items 24, 26 and 48; also see col. 2, line 64-col. 3, line 18). Brown further teaches cutting multiple fibers (see fig. 1, item fibers 26 and col. 2, lines 64-66); wherein said path comprises at least one predetermined angle (see col. 1, line 66-col. 2, line 1 and abstract).

However, Brown does not specifically teach: (A) the above relative adjusting of the laser beam is implemented for relative movement of the laser beam for purpose of cutting the above glass fiber; (B) wherein the above fibers are considered as a ribbon

fiber (C) wherein said predetermined angle is greater than about $15^{\circ}/45^{\circ}$; (D) and that wherein said beam is a continuation wave; and wherein the laser is a CO₂ laser. Nevertheless, regarding limitation (A and D) Brown states that the controller 48 adjusts laser beam 24 to vary the chopped/cut fiber length as desired during the cutting/chopping operation (see col. 4, lines 8-11). Thus, it would have been obvious to a person of ordinary skill in the art when the invention was made to conventionally vary the laser beam 24 along a path for cutting the fiber 24, rather than moving the fiber along the beam path to be cut and that it is a matter of choice to use conventionally a continuation wave laser which is a CO₂ laser, since this method of laser cutting is conventional and it would accommodate cutting of different sizes and kinds of fiber (see col. 2, lines 5-7); Regarding the above limitation (B) it is well known to those of ordinary skill in the art when the invention was made that a plurality of fibers in parallel fashion such as the fibers 26 is known fibers a ribbon fiber and regarding limitation (C) cutting a glass in a particular angle is a matter of choice since it has been held that where the general conditions of a claim are disclosed in the prior art, discovering the optimum or working ranges involves only routine skill in the art. In re Aller, 105 USPQ 233 and since having/producing fibers in such fashion(s) would facilitates cutting fibers in varying lengths (see col. 2, lines 1-7).

Regarding claims 2 and 4, Brown further teaches wherein a plurality of fibers are introduced into the holding and positioning device parallel to one another and moving the beam across the plurality of fibers so that the fibers are cut in succession (see col.

2, lines 64-66; wherein the fibers 26 are hold by the holding/positioning device 46 shown in fig. 3); wherein said path comprises a predetermined angle with respect to each fiber such that said fibers are cut in a sawtooth arrangement (see fig. 1-2. items fibers 26 laser cutter 24, wherein the cutting is implements by varying the angle of laser cutting operation, see col. 1, line 66-col. 2, line 1);

Regarding claims 8, 14 and 16-17 Brown further teaches wherein said path comprises two or more predetermined angles (see col. 1, lines 66-67; wherein varying the angle of cutting fiber embodies different angles) wherein said beam is a pulsed (see abstract); wherein accordingly to above cutting arrangement a fiber was prepared (see abstract).

Regarding claim 23, Brown teaches a device for laser cleaving a fiber (shown in fig. 1; see abstract) comprising: a holding and positioning device for receiving a fiber 46 (see fig. 3, item fiber glass 26 being hold/positioned by item 46); a laser device sufficient to deliver a beam having a power suitable for sublimating glass (see col. 2, line 64-col. 3, line 10); and a mechanism for effecting the relative adjustment of said beam across said glass fiber along a path (see fig. 1, item fibers 26 and col. 2, lines 64-66).

Regarding Brown's teaching of movement of said above beam the arguments presented in rejection of claim 1, is analogous in rejection of claim 23.

Citation of Relevant Prior Art

10. Prior art made of record and not relied upon is considered pertinent to applicant's disclosure. In accordance with MPEP 707.05 the following references are pertinent in rejection of this application since they provide substantially the same information disclosure as this patent does. These references are:

Adachi JP405341135 teaches continuous wave CO² laser for cutting glass fiber

Fukuma JP403154011 teaches cutting a glass fiber by moving a laser in a predetermined path

Abe JP405235504

Kallenborn 4158555

These references are cited herein to show the relevance of the apparatus/methods taught within this reference as prior art.

Contact Information

11. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Kaveh Cyrus Kianni whose telephone number is (703) 308-1216.

The examiner can normally be reached on Monday through Friday from 8:30 a.m. to 6:00 p.m. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Frank Font, can be reached at (703) 308-4881.

Any response to this action should be mailed to:

Commissioner of Patents and Trademarks
Washington, D.C. 20231

or faxed to:

(703) 308-7722, (for formal communications intended for entry)

or:

(703) 308-7721, (for informal or draft communications, please label "PROPOSED" or "DRAFT")

Hand delivered responses should be brought to Crystal Plaza 4, 2021 South Clark Place, Arlington, VA., Fourth Floor (Receptionist).

Any inquiry of a general nature or relating to the status of this application should be directed to the Group Receptionist whose telephone number is (703) 308-0956.

Kevin Cyrus Kianni
Patent Examiner
Group Art Unit 2877

Frank Font
Supervisory Patent Examiner
Group Art Unit 2877

June 18, 2003

